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OPEN SOURCES #25 - OPEN SOURCE IS EVERYWHERE!

OUR OPEN SOURCES COLUMN EDITOR, MICHAEL P. GERLEK, REFLECTS

Over two years ago, the first "Open Sources" column led off with a quick quiz:

First question: *What do the following all have in common - Linux, MySQL, JBoss, Apache, Perl, Python, and Firefox?*

OK, an easy one – they are all open source (OS) products, and are all well known, respected, and widely deployed. You are probably using some of them every day, without knowing it.

Second question: *What do these all have in common - MapServer, MapGuide, PostGIS, GDAL, GRASS, OpenLayers, and QGIS?*

You probably guessed - they are all OS packages for the GIS industry – servers, web clients, desktop applications, and libraries used by thousands of geospatial professionals daily.

Open Source is everywhere...

In the past 24 columns, we've seen the impact of open source across the geospatial ecosystem. Here is a quick review of some of the projects we've covered (OS project names in bold).

At the application level, **GRASS** is as a full-fledged GIS system (analysis, processing, production), **ossimPlanet** is a 3D visualization tool, and **OpenGeoBI** for business analytics. Inside those applications, for developers, we have **GDAL/OGR** raster and vector libraries and **MapWindow** libraries for .NET applications.

In our back rooms are **GeoServer** and **MapServer** for putting maps on the web and **PostGIS** for storing data in a geospatial database. For implementing SDIs and portals, we have systems like **GeoNetwork**, **degree**, **MapBender**, and **GeoDjango**. Connecting to those servers, our browsers are running JavaScript libraries like **OpenLayers** to portray map data.

We rely on file formats that are *de jure* standards, such as WMS, developed by the Open Geospatial Consortium (OGC), a group who often use open source projects as reference implementations. We also rely on *de facto* standards, like **GeoTIFF** and WMS-C/**TileCache**, which are often developed by open source teams who aim for "rough consensus and working code" to meet their own project goals and still preserve interoperability. The data we use is often public data - collected, indexed, and served by groups interested in open "data" as much as open "source".

We build businesses around support for open source geospatial technologies, with companies like Refractions Research and DM Solutions serving our industry for over a decade. These companies and others – including hundreds of independent contractors – build bespoke systems using the open source stack, for everything from marine fisheries management to US presidential election campaigns to commercial archeological analysis.

Finally, we have a growing community of users and developers nurtured and served by groups such as the Open Source Geospatial Foundation (OSGeo) and the annual, international FOSS4G conference.

…And it's not going away!

After 25 years, the open source model has more than demonstrated its ability to scale across software projects of all types and sizes. The Internet as we know it today would not exist except for the dozens of open source packages used by the world's servers.

In our own industry, you can look to wide deployment of the LAMP (Linux / Apache / MySQL / Perl) stack in the server rooms of geospatial data users, the extensive use of open source libraries like those within closed source and commercial application environments such as ESRI, and the hundreds of web sites that rely on open source JavaScript libraries for web-based mapping. Open source runs throughout our ecosystem, usually taken for granted and often without our knowledge.

Much has been said about the advantages of the transparent code base and the collaborative development model ("given enough eyeballs, all bugs are shallow") that the open source development process offers. Yet open source provides an additional advantage to the geo world. Our industry has grown much over the past decade, as geospatial data became more widely available and as people began to recognize the advantages of combining geo data with their existing systems; more geo data – and more sources of geo data, such as Open Street Map – appear online daily. Open source dramatically lowers the barrier to entry for people to explore this new data, providing interoperability between disparate sources and applications.

Some Parting Thoughts

Many myths surround open source, most of which can be dispelled by some of the projects described in this column. You hear that open source software "doesn't scale well", but look at the performance of PostGIS and MapServer. You hear that the use of open source is "incompatible with commercial software", but look at ESRI's use of GDAL. You hear that "you can't get support for open source", but look at the dozens of mailing lists with hundreds of subscribers hosted by OSGeo, or the ten years of success of companies like DM Solutions and Refractions Research.

Having seen open source in action since the late '80s when I was first introduced to the Unix world, I admit I still find it surprising that anyone today can seriously doubt the ability of the open source model to be a viable part of their workflows. Unquestionably there are many open source applications that are not scalable, commercially useful, or well-supported – but the same argument can be made for many closed source applications as well.

I think the geospatial world needs more education about open source. Open source advocates need to continue to demonstrate the value of the paradigm, and you potential open source users need to do your homework to educate yourselves about the options available.